

# The Association Between Pain, Hopelessness, and Suicide Risk Among Adult Medical Inpatients



## Background

- Medically ill adults are at elevated risk for suicide, with multiple physical health conditions further exacerbating risk.<sup>1</sup>
- Chronic pain of any type has been previously associated with increased suicide death rates.<sup>2</sup>
- Hopelessness related to a negative medical prognosis may be a risk factor for suicide.<sup>3, 4</sup>

## Aim

- Describe the association between suicide risk, self-reported pain, and hopelessness among a sample of adult medical inpatients.

## Methods

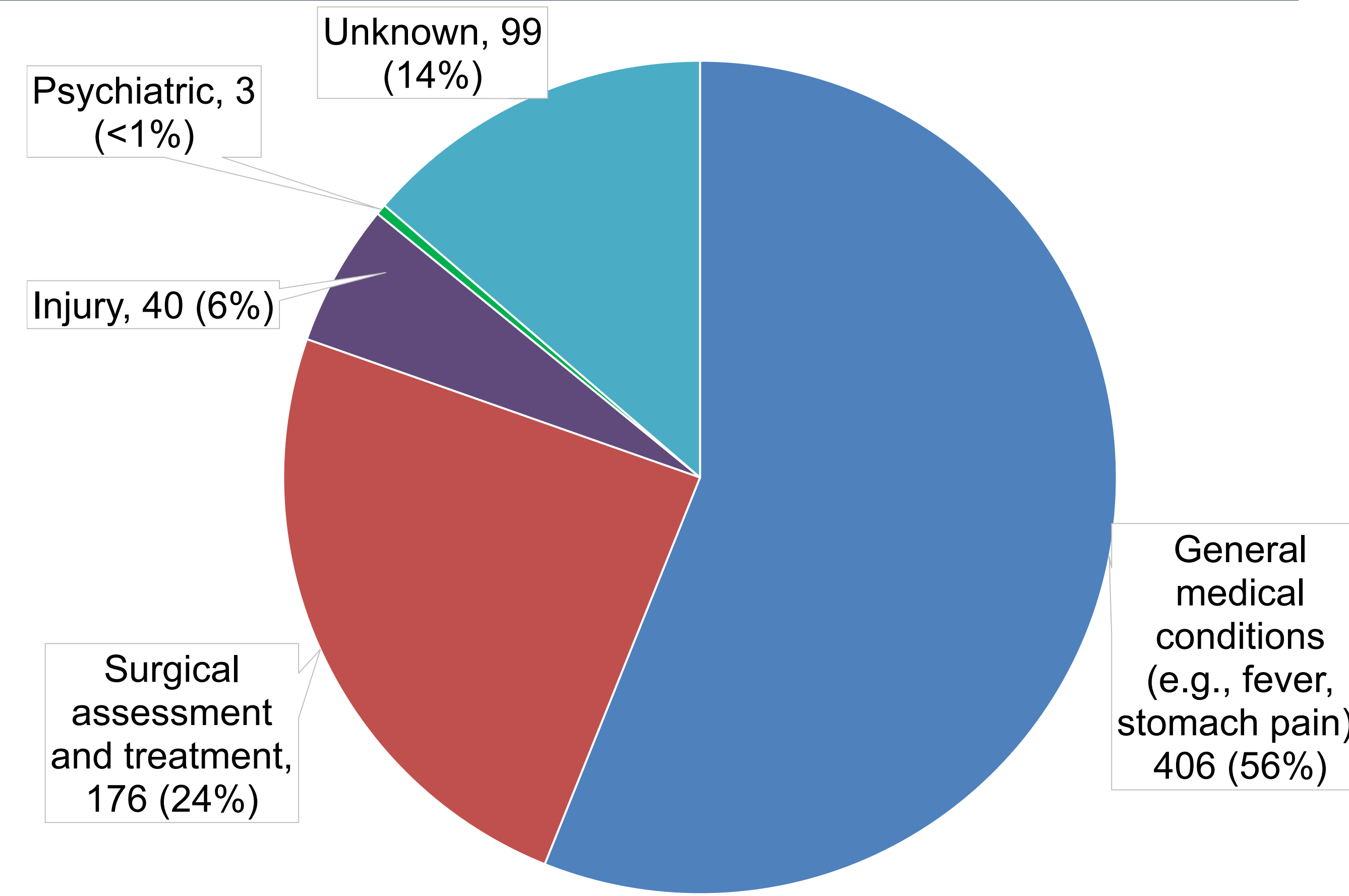
- **Design:** Secondary analysis of multisite suicide risk instrument validation study.<sup>5</sup>
- **Sample:** Convenience sample of inpatients enrolled at 4 U.S. hospitals.
- **Eligibility Criteria:** ≥18 years of age, English-speaking.
- **Participants Completed:**
- The **Ask Suicide-Screening Questions (ASQ)** tool,<sup>5</sup> a 4-item tool to identify suicide risk.
- 2 items about pain:
  - “Do you have chronic pain that affects your daily life?”
  - Pain rating 1-10 scale
- 2 items about hopelessness
  - “In the past few weeks, have you felt hopeless about your medical condition, like things would never get better?”
  - “In the past few weeks, has your medical condition led you to seriously consider killing yourself?”

- **Analysis:** Binary logistic regression models described the association of suicide risk with chronic pain and hopelessness. A t-test analysis compared pain rating scores by ASQ outcome.

## Results

**Table 1: Participant Demographics**

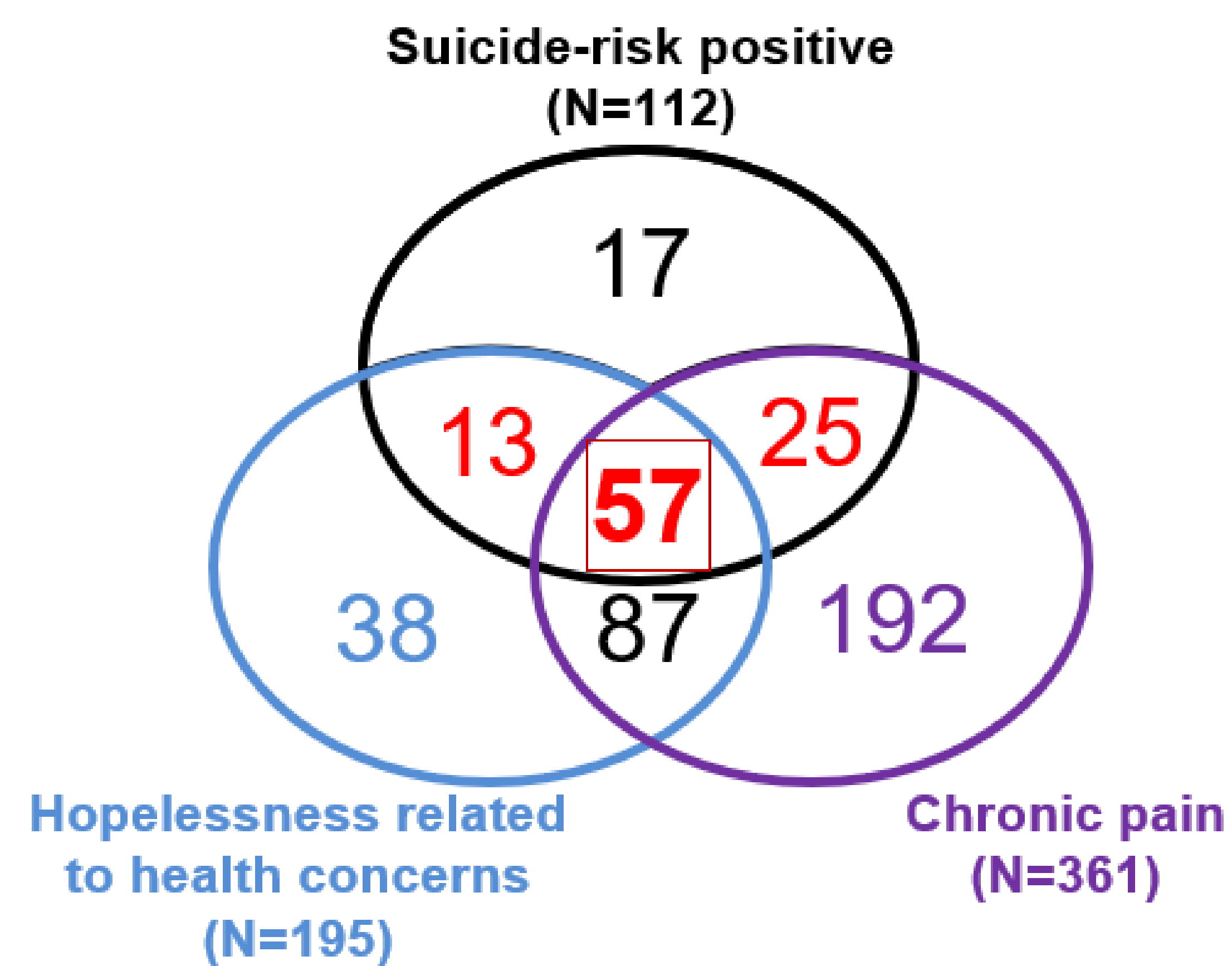
Demographics	Total (N = 724)	ASQ Positives (N = 112, 15.5%)
<b>Gender:</b>		
Male	386 (53.3%)	51 (45.5%)
Female	336 (46.4%)	61 (54.5%)
Unknown	2 (0.3%)	-
<b>Race/Ethnicity:</b>		
White	450 (62.2%)	74 (66.1%)
Black	141 (19.5%)	16 (14.3%)
Other	30 (4.1%)	4 (3.6%)
Multiple races	23 (3.2%)	4 (3.6%)
Asian	20 (2.8%)	1 (0.9%)
Pacific Islander	2 (0.3%)	-
Latino/Hispanic	58 (8.0%)	13 (11.6%)
Mean Age: (Range: 18-93)	50.2 [16.3]	47.1 [14.6]



**Figure 1: Reason for Inpatient Admission (N=724)**

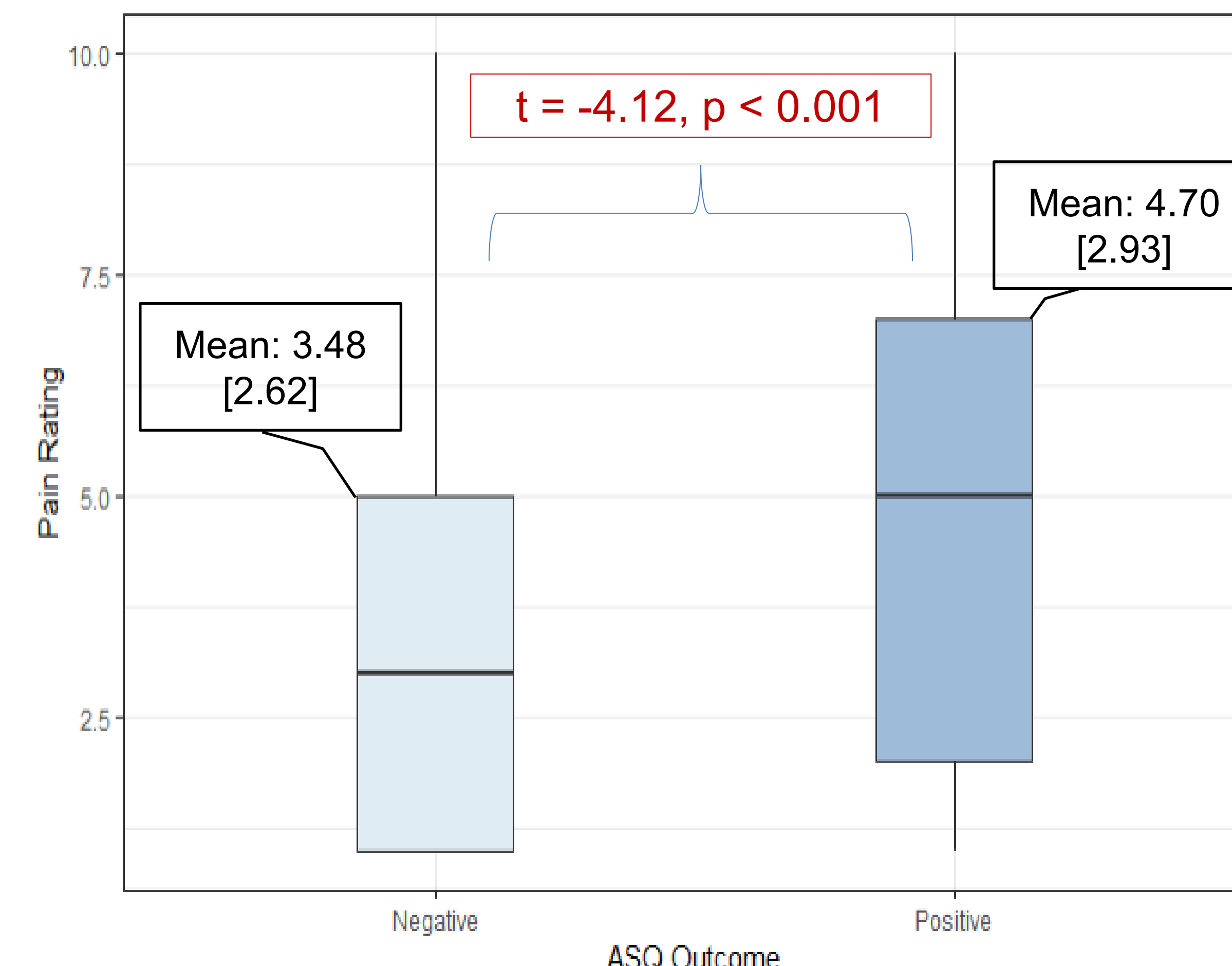
**Table 2: Logistic Regression Model for Association Between Pain, Hopelessness, and Suicide Risk**

Predictor	Odds Ratio [Exp(β)]	Standard Error	z value	p value	95% CI
In each model, suicide risk was the outcome. Both models were adjusted for age and sex.					
Presence of chronic pain	3.25	0.23	5.14	< 0.001	2.10 – 5.17
Hopeless about medical condition	6.25	0.22	8.30	< 0.001	4.07 – 9.68



**Figure 2: Relationship Between Suicide Risk, Hopelessness, and Pain**

Medical condition as a reason for SI: 20 (2.8%) individuals reported that their medical condition led them to seriously consider killing themselves. Of those, 19 (95%) were positive on the ASQ.



**Figure 3: Pain Rating by ASQ Outcome**

## Discussion

- The presence of chronic pain and higher pain scores are significantly associated with elevated suicide risk.
- Self-reported feelings of hopelessness about a medical condition may be a risk factor for suicidal thoughts and/or behavior.
- 57 (8%) individuals endorsed the triad of suicidal thoughts/behavior, chronic pain, and hopelessness related to their medical condition.
- Future analyses should examine how the chronicity and prognosis of medical conditions relate to suicide risk.

## Limitations

- Individuals with severe illness or intense pain may be less likely to enroll in a research study, contributing to potential underestimation.
- The study did not monitor changes in physical condition or pain over time.
- Pain ratings and experiences are subjectively rated via self-report.

## Conclusions

- There is a strong association between medical suffering and suicide risk. These findings highlight the importance of universal screening of adult medical patients for suicide risk in healthcare settings.

## References

1. Ahmedani BK, Peterson EL, Hu Y, et al. Major Physical Health Conditions and Risk of Suicide. *Am J Prev Med.* 2017;53(3):308-315. doi:10.1016/j.amepre.2017.04.001
2. Racine M. Chronic pain and suicide risk: A comprehensive review. *Prog Neuropsychopharmacol Biol Psychiatry.* 2018;87(Pt B):269-280. doi:10.1016/j.pnpbp.2017.08.020
3. Kolva E, Hoffecker L, Cox-Martin E. Suicidal ideation in patients with cancer: A systematic review of prevalence, risk factors, intervention and assessment. *Palliat Support Care.* 2020;18(2):206-219. doi:10.1017/S1478951519000610
4. McFarland DC, Walsh L, Napolitano S, Morita J, Jaiswal R. Suicide in Patients With Cancer: Identifying the Risk Factors. *Oncology (Williston Park).* 2019;33(6):221-226.
5. Horowitz LM, Snyder DJ, Boudreaux ED, et al. Validation of the Ask Suicide-Screening Questions for Adult Medical Inpatients: A Brief Tool for All Ages. *Psychosomatics.* 2020;61(6):713-722. doi:10.1016/j.psym.2020.04.008

## Acknowledgements

This work was supported in part by the Intramural Research Program (ZIAMH002922) of the National Institute of Mental Health. Disclosure: The authors have no financial relationships or conflicts of interest to disclose. The authors would like to thank June Cai, Tram Dao, and John F Chaves for their instrumental contributions to this study.